

**MULTI-STATE NON-VOLATILE INTEGRATED CIRCUIT MEMORY
SYSTEMS THAT EMPLOY DIELECTRIC STORAGE ELEMENTS**

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ABSTRACT OF THE DISCLOSURE

Non-volatile memory cells store a level of charge corresponding to the data being stored in a dielectric material storage element that is sandwiched between a control gate and the semiconductor substrate surface over channel regions of the memory cells. More than two memory states are provided by one of more than two levels of charge being stored in a common region of the dielectric material. More than one such common region may be included in each cell. In one form, two such regions are provided adjacent source and drain diffusions in a cell that also includes a select transistor positioned between them.

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